RECENT ASPECTS OF NITROGEN METABOLISM IN PLANTS—Edited by E. J. Hewitt and C. V. Cutting. xvi + 280 pages with 29 tables, 81 figures and 14 plates. (Academic Press, London, 1968.) Price £4 4s. 0d.

This book constitutes the proceedings of a symposium held at the Long Ashton Research Station, Bristol, during 1967. The 14 chapters are grouped into three sections.

Section 1 deals with transformations in inorganic nitrogen metabolism and nitrogen fixation. It starts off with an interesting chapter dealing with the fundamental causes for the unusually inert nature of molecular nitrogen. From first principles the authors conclude that the elements of Group VIII, such as Fe, Co or Ni, seem most likely to be the metal used in nature for nitrogen fixation. It will be interesting to see whether future research will substantiate this deduction.

In the second chapter Bond provides a brief but stimulating survey of the symbiotic nitrogen fixing systems. Chapter 3 is devoted to nitrogen fixation in *Anabaena cylindrica*. It is concluded that nitrogen fixation in this blue-green alga is not dependent on ATP or reducing power generated directly by light. The status of hyponitrite and hydroxylamine as possible intermediates in nitrite reduction by plants is reviewed in chapter 4. The authors point out that the latest evidence appears to completely exclude free hydroxylamine as an intermediate in nitrite reduction in higher plants. After a very short paper dealing with the localization of the nitrate reducing enzymes in barley section 1 is concluded with a stimulating chapter on mechanisms involved in the regulation of nitrogen assimilation in micro-organisms and plants.

Section 2 deals with the intermediate metabolism of amino acids and with relationships between mineral nutrition and protein synthesis. In dealing with the metabolism of amino acids in plants, Davies stresses the lack of studies of this nature and cautions against the tendency to assume that the amino acid metabolism of plants is similar to that of animals and micro-organisms. The biosynthesis of putrescine in higher plants and its relation to potassium nutrition is discussed in one chapter whilst another is devoted to some properties of plant diamine oxidase. This section is concluded by a chapter dealing with the specificity of amino acid biosynthesis and incorporation into plant proteins. It is made evident that the study of non-protein amino acids in plants is highlighting a number of problems associated with amino acid and protein biosynthesis such as the organization of animo acid pools and the screening and specific selection of animo acids for incorporation into proteins.

In section 3 some interactions of the nitrogen metabolism of plants and external factors are discussed. Luckwill considers the relations between plant growth regulators and nitrogen metabolism in the first chapter. The second chapter is devoted to deviations in nitrogen metabolism associated with viruses and contains some splendid electron micrographs of plant virus particles. In the third chapter Pate deals with the extensive studies carried out at Queens University, Belfast on the assimilation, transport and utilization of nitrogen in the field pea (*Pisum arvense* L.). The last chapter in the book deals with the effect of climate and time of application of nitrogenous fertilizers on the development and crop performance of fruit trees.

The wide variety of aspects of nitrogen metabolism dealt with in the book, the lucid style in which it is written and the high standard of nearly all the chapters should guarantee it a place on the bookshelf of most plant physiologists. Despite its wide coverage this book, like most symposia, cannot substitute for the comprehensive textbook with its unified treatment of the subject matter and it will therefore not be of general use to undergraduate students.

N. GROBBELAAR

DENDROLOGIA DE MOÇAMBIQUE by A. Gomes e Sousa Vols I and II—Published as a memorias by the Instituto de Investigacae Agronomica de Mocambique 1968. Price about R4 per volume.

Dr. Gomes e Sousa is well known to South African Botanists. He has now published this fine two-volume monograph on the trees of Moçambique which is the result of many years of study of the Moçambique flora. Although unfortunately many South Africans do not have much Portuguese, the botanical facts are easily gleaned and Dr. Gomes e Sousa's beautiful illustrations will be of great value in identifying specimens.

Casuarina equistifolia (=*C. africana*) is included. Airey Shaw, however, considers this a questionable record.

ENID DU PLESSIS